

## WINTER WEATHER AWARENESS WEEK 2002-2003

### An Campaign by the National Weather Service Tennessee Emergency Management Agency North Carolina Emergency Management Virginia Department of Emergency Services



The National Weather Service and the State Emergency Management Agencies would like to bring a weather threat to the forefront and heighten everyone's awareness – Winter Weather. Hazardous weather can strike with little notice. Tornadoes strike with unwanted regularity. Severe thunderstorms with downburst winds and large hail occur even more frequently. Floods and flash floods can wash people and property away with little notice.

The last few winters have been relatively mild across the region. Even with these mild winters, some areas had significant winter weather, shutting down roads and interstates for periods of time. The Christmas Eve 1998 ice storm caused over 17 million dollars of damage and widespread transportation problems. The winter of 95-96 saw many areas of the Southeastern U.S. experiencing a number of very heavy snow and ice storms. Heavy snow or ice can trap people in their homes or automobiles. People are inconvenienced, injured or even killed.

Even without snow or ice, intense cold can injure or kill before a person is aware they are at risk. Fatalities from hypothermia have occurred in air temperatures of 40-50

degrees. Persons with certain chronic health conditions and those over 65 are more at risk for hypothermia, **even within the home.**

One hazard we do not often associate with winter is flooding. Floods occur when too much rain or melted snow fill river or creek basins too quickly. Along Tennessee's rivers and streams, flooding is a natural part of life and most common during winter and early spring. Frozen ground, sparse vegetation, and less evaporation are all factors that allow water to run off the land and reach the rivers quickly during the cold months.

The State of Virginia will highlight Winter Awareness during the week of November 10th-16th. The National Weather Service in Morristown and the Tennessee State Emergency management Agency will highlight November 19-21 to bring these hazards to the attention of the public. We will be sending information through our communications network including the National Weather Service's NOAA Weather Radio during this period. We hope you will all join in this effort to make this the safest winter possible.

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### A Word from the Meteorologist in Charge - Jerry O. McDuffie

It is now early November and the cool weather has presented itself once again. After a dry summer, the normally dry September and October brought us much needed rain. Could there be more surprises in the offing for the winter? Remember, we have had a string of mild winters for the most part with small amounts of snow. Most of us probably have become spoiled by the relatively warm and drier winters these last 4 to 6 years.

It appears that a weak to moderate El Nino will affect the weather across the southern United States this winter. We are not sure what effect it will have on east Tennessee, southwest Virginia, and extreme southwest North Carolina; but, it certainly could give us a wet winter. An El Nino provides extra moisture across the southern tier of states resulting in above normal rains from southern Texas across the southern portions of Louisiana, Mississippi, Alabama, Georgia and much of Florida. In most cases, an El Nino event does not provide too much effect here. However, during the last case, the winter of 1997/1998, we witnessed several episodes of snow and rain.

One thing is for sure, we need to be prepared for winter weather. During the winter months in our area, we can experience almost any type of weather. We need to think in terms of flooding, severe thunderstorms, possible tornadoes, and high winds; in addition to snow, sleet and freezing rain. Preparing means getting ready now for what could happen over the next several months. Ensure that your vehicle is prepared...tires, antifreeze, engine, etc. Check around your home...furnace, insulation, emergency fuels and/or alternative heating sources, etc. Get your family together and discuss what actions you will take and where emergency items are kept. This applies not only for heavy snow or ice; but, for flooding and other events.

Think about how this information applies to you and how it can help prepare your family for the winter months. We at the National Weather Service, certainly wish you the very best for the winter months. We hope you will prepare and be ready for what nature may throw our way.

If you have questions, please email, call or write.

# Know the Threat!!

## Snow and Freezing Rain

Heavy snow and/or freezing rain can immobilize a region and paralyze a city. Accumulations of snow can collapse buildings and knock down trees and power lines. Rural areas may be isolated for days. It is recommended that each household have provisions and the ability to remain self-sufficient for at least 3 days without power, or help, as it may take this long to reopen main roads and reestablish vital services.

## Wind Chill

Wind Chill is based on the rate of heat loss from exposed skin caused by the combined effects of wind and cold. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are also affected by wind chill. The biggest question that always comes up with wind chill is, does it affect water pipes and car radiators. The answer is no, the accelerated loss of heat occurs on exposed skin only.

## Hypothermia

### Warning Signs

Uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion. At times, particularly in the elderly, Hypothermia can be mistaken for other illnesses. To avoid Hypothermia, the elderly need to be kept particularly warm with room temperatures above 70 degrees.

### Detection

Take the person's temperature. If below 95 degrees F, immediately seek medical care. This is a life threatening situation. If care is not immediately available, begin warming the person slowly. Warm the core first. Get the person into warm clothing and wrap them in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee, or any very hot beverage or food, warm broth is better. Do not warm the extremities first, this drives cold blood toward the heart and may cause heart failure.

## Frostbite

Frostbite is damage to body tissue caused by the tissue being frozen. Frostbite causes the loss of feeling and a white or pale appearance in extremities, such as fingers, toes, earlobes, or the tip of the nose. If symptoms are detected, get medical help immediately. If you must wait for help, slowly re-warm affected areas. If the person is also showing signs of hypothermia, warm the body core before the extremities.

## Flooding

Flooding is the number one weather killer in the United States annually. Whether or not you live in a flood prone location, you will likely still be affected by flooded roads, or power and water outages from flooding during the next year. Most people killed in flooding die in their vehicles. NEVER drive onto flooded roads. One foot of running water is enough to sweep away most cars. If flooding begins to affect you in your car, abandon it immediately and head for higher ground. You should keep at least three days' worth of clothes, non-perishable foods and medications, and personal supplies on hand for each person in your family, in case flooding affects your home. Store these supplies in a sturdy waterproof container.

## Before the Storm

**Know the terms** – A Winter Weather Advisory is issued when ice or snow is expected to hinder travel, but conditions are not serious enough to require warnings.

Freezing rain is forecast when expected rain is likely to freeze as soon as it strikes the ground, potentially creating a coat of ice on roads and walkways. Sleet consists of small particles of ice mixed with rain. Sleet causes roads to freeze and become slippery.

A winter storm watch means that severe winter weather is possible within the next day or two.

A Winter Storm Warning means that severe winter weather conditions are expected within the next 24 hours. A blizzard warning means that heavy snow and winds of 35 mph or more are expected.

**Be Prepared** – Keep a battery powered radio and flashlights in working order, stock extra batteries.

Store drinking water and have food that can be prepared without an electric or gas stove. Stock emergency water and cooking supplies. Have candles and matches available in case of a power outage. Be careful how you use them.

Be certain that needed medications are available.

**Be Prepared for isolation at home –** Make sure you have sufficient heating fuel; regular fuel sources may be cut off. Have some kind of emergency heating equipment and fuel so that you can keep at least one room warm, but do NOT use a gas fired grill inside the home. Take measures to protect plumbing from freezing. Contact local utilities for winter tips.

Keep your car or truck “winterized” - Winterizing includes being

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## **During the Storm**

**Stay Informed –** Listen to radio or television for updates on weather conditions. With early warning, you may avoid being caught in the storm, or at least be better prepared to cope with it.

**Dress for the season :** Avoid getting wet – Many layers of thin clothing are warmer than a single layer of thick clothing. Mittens are warmer than gloves. Wear a hat; most body heat is lost through the top of the head. Cover your mouth to protect lungs; don't directly inhale extremely cold air.

**Overexertion can bring on a heart attack –** a major cause of death during and after winter storms – If shoveling snow isn't critical, don't do it. If you must shovel, don't overexert yourself.

**If you are isolated at home –** Conserve fuel by keeping your house cooler than usual and by “closing off” heat to some rooms. When kerosene heaters are used, maintain ventilation to avoid toxic fumes. Use only the fuel recommended by the

certain about antifreeze protection levels and use a gasoline additive to reduce gasoline freezing. Carry a “Winter Car Kit” that includes high energy foods, a windshield scraper, flashlight, tow rope or chain, shovel, tire chains, blanket, bag of sand or salt, fluorescent distress flag and an emergency flare – all in case you're trapped in your vehicle by a winter storm. Keep extra gloves, mittens, hats, earmuffs and outerwear in the vehicle throughout the winter.

manufacturer and follow operating instructions. Use a carbon-monoxide detector/alarm and a smoke alarm.

**Do Not Drive into Worsening Conditions –** If you must travel, take winter driving seriously. Travel by daylight, and keep others informed of your schedule. Drive with extreme caution. Never try to save time by driving fast or by using back-road shortcuts.

**If a Blizzard traps you in your vehicle –** Pull off the highway, stay calm and remain in your vehicle where rescuers are most likely to find you. Set your directional lights to “flashing” and hang a cloth or distress flag from the radio antenna or window.

**Do not set out on foot unless you can see a building close by where you know you can take shelter.** Be careful: distances are distorted by blowing snow. A building may seem close, but actually may be too far away to walk to in deep snow.

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## **If a blizzard traps you in a vehicle**

**If you run the engine to keep warm, open a window slightly for ventilation.** This will help protect you from possible carbon monoxide poisoning. Periodically clear away snow from the exhaust pipe.

**Exercise to maintain body heat, but avoid overexertion.** In extreme cold, use road maps, seat covers, and floor mats for insulation. Huddle with passengers and use your coats as blankets.

**Never let everyone in the car sleep at one time.** One person should always be awake to look out for rescue crews.

**Be careful not to use up all battery power.** Balance electrical energy needs – the use of lights, heat and radio with supply. At night, turn on the inside dome light, so work crews can spot you.

**If in a remote area:**

**Spread a large cloth or the vehicle floor mats on the snow to attract rescue personnel who may be surveying the area from above.** Once the blizzard passes, you may need to leave the car and proceed on foot to better shelter.

**Keeping in Touch** After any disaster, friends, relatives, insurance adjusters, etc. may need to locate you and your family. The following tips may reduce the confusion associated with making contact:

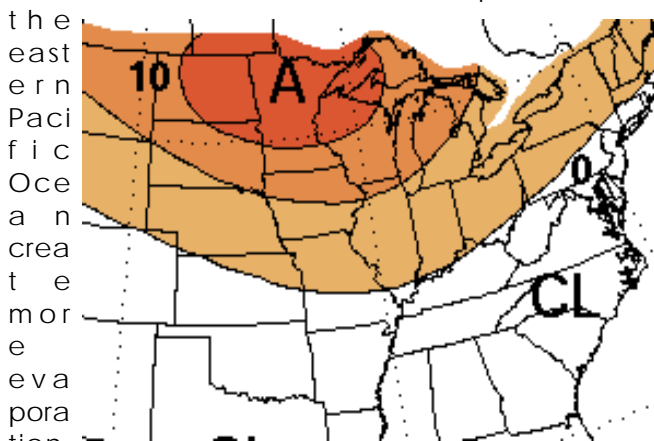
- (1) Before evacuating your home, establish a contact person (and phone number) out of the potential disaster area where friends and relatives should “check-in” with each other.
- (2) When you evacuate, consider leaving a note, securely attached to the front door, telling where you can be reached –

but only if you have reason to believe someone might come looking for you.

(3) If widespread damage occurs, insurance adjusters or others might have trouble identifying your home or finding you. After the danger is over, therefore, consider spray painting the following information somewhere that is highly visible: Name, address, insurance company, policy number and contact number

## Outlook for the Winter

The 2002-2003 winter outlook for the southern Appalachian region calls for near-normal temperatures and below-normal precipitation. This year's outlook is based on the occurrence of moderate El Niño conditions over the eastern Pacific Ocean. El Niño is a phenomenon that involves interaction between the ocean and atmosphere. Warmer-than-normal sea surface temperatures over

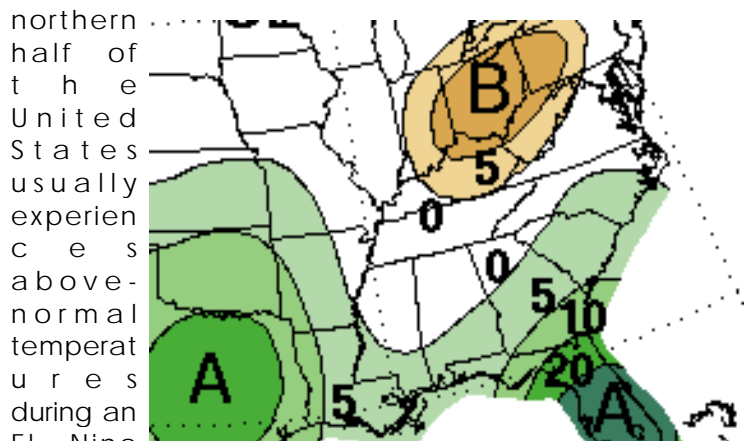


Temperature Dec-Feb CL=Climatology  
and thus, A= Above Average  
more

atmospheric moisture which gets transported across the southern half of the United States. The southern Appalachian region normally does not experience a direct effect from the El Niño phenomenon, although below-normal precipitation is typically observed across the Ohio Valley. Most previous El Niño events (8 out of 10) produced below-normal winter precipitation across east Tennessee,

although the Carter County flash flood of January 1998 occurred during the strong 1997-1998 El Niño event.

As for temperatures, this El Niño phenomenon produces a stronger sub-tropical jet stream across the southern United States, which typically keeps arctic outbreaks of cold air to a minimum. Thus, the northern



half of the United States usually experiences above-normal temperatures during an El Niño influence  
Precipitation Forecast Dec-Feb A=Above, d winter. B=Below Normal

This

doesn't mean that there won't be any arctic outbreaks of cold air, but they should be fewer and far between this winter.

For more information go to [www.cpc.noaa.gov](http://www.cpc.noaa.gov)

## Normal winter weather conditions:

	<u>December</u>	<u>January</u>	<u>February</u>	<u>Season</u>
<u>Bristol</u>				
Avg High Temps	47.8	44.1	48.9	46.9
Avg Low Temps	26.8	24.3	27.0	26.0
Avg Temps	37.3	34.2	38.0	36.5
Avg Precip	3.39	3.52	3.40	10.35
Avg Snowfall	2.2	5.5	4.1	11.8
<u>Knoxville</u>				
Avg High Temps	49.8	46.3	51.7	49.3
Avg Low Temps	31.9	28.9	31.8	30.9
Avg Temps	40.9	37.6	41.8	40.1
Avg Precip	4.49	4.57	4.01	13.07
Avg Snowfall	0.7	3.7	3.0	7.4
<u>Chattanooga</u>				
Avg High Temps	52.0	48.8	54.1	51.6
Avg Low Temps	32.7	29.9	32.6	31.7
Avg Temps	42.4	39.4	43.4	41.7
Avg Precip	4.81	5.40	4.85	15.06
Avg Snowfall	0.1	2.0	1.3	3.4

## **Records**

### **All Time Cold Temperatures**

<u>Chattanooga</u>	<u>-10 Feb 13, 1899; 1/31/66, 1/21/1985</u>
<u>Knoxville</u>	<u>-24 Jan 21, 1985</u>
<u>Tri-Cities</u>	<u>-21 Jan 21, 1985</u>

### **Coldest Average Winter**

<u>Chattanooga</u>	<u>34.8</u>	<u>1962-63</u>
<u>Knoxville</u>	<u>34.2</u>	<u>1963-64</u>
<u>Tri-Cities</u>	<u>30.0</u>	<u>1976-77 1977-78</u>

### **Coldest Monthly Average**

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>
<u>Chattanooga</u>	<u>34.3 1917</u>	<u>28.5 1977</u>	<u>33.8 1895</u>
<u>Knoxville</u>	<u>29.2 1876</u>	<u>26.7 1940</u>	<u>30.5 1895</u>
<u>Tri-Cities</u>	<u>27.8 1963</u>	<u>22.1 1977</u>	<u>28.1 1958</u>

### **Snowfall Seasonal**

<u>Chattanooga</u>	<u>23.9</u>	<u>1894-95</u>
<u>Knoxville</u>	<u>56.7</u>	<u>1959-60</u>
<u>Tri-Cities</u>	<u>51.0</u>	<u>1959-60</u>

### **Monthly**

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>
<u>Chattanooga</u>	<u>14.8/1886</u>	<u>15.8/1893</u>	<u>17.3/1895</u>	<u>20.0/1993</u>
<u>Knoxville</u>	<u>25.4/1886</u>	<u>15.1/1962</u>	<u>25.7/1895</u>	<u>20.2/1960</u>
<u>Tri-Cities</u>	<u>12.9/1963</u>	<u>22.1/1966</u>	<u>20.4/1979</u>	<u>27.9/1960</u>

### **24 Hour**

<u>Chattanooga</u>	<u>12.0/1886</u>	<u>10.2/1988</u>	<u>9.9/1912</u>	<u>20.0/1993</u>
<u>Knoxville</u>	<u>8.9/1969</u>	<u>12.0/1962</u>	<u>17.5/1960</u>	<u>14.1/1993</u>
<u>Tri-Cities</u>	<u>9.6/1969</u>	<u>13.0/1996</u>	<u>11.5/1996</u>	<u>14.2/1993</u>



## Significant Weather Product Guide

9 Letter ID	WMO ID	Mass News Header	Use and Criteria for WFO Morristown
MEMHWOMRX	FLUS 44 KMRX	Hazardous Weather Outlook	Issued at least once daily to indicated hazardous weather expected next 7 days. Divided into day one and day 2 to 7 sections. Emergency Management and Spotter activation message included.
MEMWSWMRX	WWUS44 KMRX	Winter Storm Warning	Issued in the first and sometimes second period forecast when 4 inches or more of snow in 12 hours or 6 inches or more in 24 hours or 1/4 inch or greater of ice, dangerous wind chills or a combination are expected
		Winter Storm Watch	Issued in the second and later periods of the forecast when winter storm warning criteria may be reached in the 1 <sup>st</sup> or 2 <sup>nd</sup> period of the forecast
		Winter Weather Advisory	Issued in the first period of the forecast when 1 or more but less than 4 inches of snow expected
		Winter Weather Statement	Used to followup on Winter storm watches, warnings, or advisories, including cancellations
		High Wind Warning	High winds not associated with thunderstorms of sustained 40 mph or greater or gust 58 mph
MEMNPWMRX	WWUS74 KMRX	Wind Advisory	High winds not associated with thunderstorms of sustained 25 mph or greater but less than 40 mph.
		High Wind Watch	Warning criteria High winds not associated with thunderstorms possible in the second and later periods of the forecast
		Dense Fog Advisory	Wide Spread Dense Fog with 1/4 mile or less visibility
		Freeze Warning	Freezing temperatures for 2 to 3 hours during the growing season
		Wind Chill Advisory	Wind chill values less than -15 with windspeeds at least 10 mph for 3 hours or greater
		Excessive Heat Advisory	Daytime heat index of 105 or higher for 2 days with an overnight minimum of 80 or higher
		Statement	Used to followup on any of the Non-Precipitation hazards and for cancellations.

9 Letter ID	WMO ID	Mass News Header	Use and Criteria for WFO Morristown
MEMTORMRX	WFUS54 KMRX	Tornado Warning	Issued when a tornado has been sited or detected on radar
MEMSVRMRX	WUUS54 KMRX	Severe Thunderstorm Warning	Issued when a severe thunderstorm reported or detected on radar for 58 mph or greater winds or 3/4 inch hail or greater
MEMFFWMRX	WGUS54 KMRX	Flash Flood Warning	When flooding is occurring or expected within 6 hours of the causing event (rain/damburst)
MEMFLWMRX	WGUS44 KMRX	Flood Warning	When flooding is occurring or expected to occur 6 or more hours after the event, or at a river forecast point
MEMFFAMRX	WGUS64 KMRX	Flood Watch/Flash Flood Watch	When flooding conditions are possible but not yet occurring
MEMFFSMRX	WGUS74 KMRX	Flash Flood Statement	Supplementary flash flood information
MEMFLSMRX	WGUS84 KMRX	Urban and Small Stream Flood Advisory	When flooding is a nuisance but not yet life threatening
MEMSVSMRX	WWUS54 KMRX	Severe Weather Statement	Used to followup a Severe Thunderstorm or Tornado Warning with updates or cancellations.
MEMSPSMRX	WWUS84 KMRX	Special Weather Statement	Used to provide significant weather information not available in other products.
MEMTORMRX	WFUS54 KMRX	Tornado Warning	Issued when a tornado has been sited or detected on radar
MEMSVRMRX	WUUS54 KMRX	Severe Thunderstorm Warning	Issued when a severe thunderstorm reported or detected on radar for 58 mph or greater winds or 3/4 inch hail or greater
MEMPNSMRX	NOUS44 KMRX	Public Information Statement	Used for miscellaneous weather information including snow and rainfall totals across the forecast area